FACULTY OF ENGINEERING
B.E. I - Semester (AICTE) (Main) (New) Examination, July 2021

Subject: Programming for Problem Solving

Time: 2 Hours   Max. Marks: 70

Note: (i) First question is compulsory and answer any three questions from the remaining six questions.
   (ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.
   (iii) Missing data, if any, may be suitably assumed.

1 Answer any four questions.   (4 x 4 = 16 Marks)

   (a) Differentiate compiler and interpreter.
   (b) What is self-referential structure and given example?
   (c) What is a file? What are file operations?
   (d) In what way does an array differ from an ordinary variable?
   (e) Write the algorithm for linear search.
   (f) Define string. List any four string manipulation functions.
   (g) Write a function to find the sum of digits of a given number.

                                                                (3x18 = 54 Marks)

2 (a) Draw a flowchart to find the root of a quadratic equation.
   (b) Explain about computer components in detail.

3 (a) Explain different ways of passing arguments to function with example.
   (b) Write a C program to add the prime numbers of a certain range (0 to 10).

4 (a) Explain how arrays are passed to a function with an example.
   (b) Write a program to find the second maximum in an array using function.

5 (a) How is a structure data type different from an array? Explain with an example.
   (b) Write a program to display the prime numbers in a Fibonacci series using recursion.

6 (a) Why pointers should have data types when their size is always 4 bytes (in a 32-bit machine), irrespective of the variable they are pointing to?
   (b) Write a program to copy contents from one existing file into another file.

7 (a) Write a short notes on call by reference.
   (b) Explain linear search algorithm with suitable example.

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